REMARKS

In response to the Office Action mailed November 3, 2003, Applicant proposes to amend his application and requests reconsideration in view of the proposed Amendment and following remarks.

THE AMENDMENT

In this Amendment it is proposed to rewrite claim 9 in independent form, retaining the original claim number by combining examined claims 1, 6, 8, and 9. Amended claim 9 is identical to previously examined claim 9. This amendment necessitates the cancellation of claims 6-8. The purpose of the proposed amendment is to highlight claim 9, a claim that does not seem to have been given independent consideration in the examination of this patent application.

Three dependent claims, claims 10-13, the same number of finally rejected claims that are canceled, are proposed to be added. Claims 11 and 12 are identical in their limitations to examined claims 4 and 5, but are made dependent from the newly independent claim 9. New claim 13 includes the same limitation as examined claim 10, but depends from newly independent claim 9.

No amendment proposed here can raise any new issue. Therefore, entry of the amendment is proper and earnestly solicited, independent of the action on the merits.

THE REJECTION

According to the Office Action, claims 1-10 are now finally rejected as unpatentable over Hopper (U.S. Patent 5,010,454) in view of Faulk (U.S. Patent 5,945,806) and further in view of Lemke (U.S. Patent 5,859,506). This rejection is respectively traversed.

The Office Action is particularly difficult to assimilate. Previously, the claims were rejected as unpatentable over Hopper in view of Faulk. It seems apparent that Lemke has now been added as an essential element of the rejection. However, the Office Action repeats, *verbatim* the prior rejection, based solely on Hopper and Faulk, as to all of claims 1-10. Only at page 5 of the Office Action is it acknowledged that the combination of Hopper and Faulk does not disclose the regulator circuit as defined by claims 1 and 6. According to that page of the Office Action, Lemke describes a controller for regulating a battery voltage supplied to a lamp so that no matter which of several batteries is employed to power the lamp, the voltage is regulated to the fixed operating voltage of the lamp. As discussed in further detail below, this characterization of Lemke is erroneous. Lemke's circuit describes a very different

voltage regulation. Therefore, for the reasons discussed in detail below the rejection is still erroneous and should be, upon further consideration, withdrawn.

As pointed out in the Response filed August 15, 2003, there are factual errors in the Office Action. Applicant does not acquiesce in these errors and therefore repeats comments appearing in the previous response.

In citing Hopper, the Examiner stated that the operating voltage of the light bulb 35 is 12 volts. (Column 4, lines 15-24 of Hopper.) There is no discussion found within Hopper concerning the operating voltage of the principal light bulb employed in Hopper's flashlight. What is stated in the cited passage is that Hopper's flashlight includes batteries that seem to be constantly charged when inserted into a recharging tray mounted on a motor vehicle. The batteries are recharged by the battery of the motor vehicle which, Hopper alleges, has a voltage ranging from 14.4 volts to 12 volts. According to lines 19 and 20 of Hopper, the voltage regulator employed supplies a stable 10 volts to the charging circuitry. This recharging voltage recharges batteries 92. Since the batteries are charged with a voltage of 10 volts, it can be assumed that the nominal voltage of the batteries being charged does not exceed 10 volts. Assuming the battery, when the flashlight is operated, is connected directly to the light bulb, then the light bulb presumably has an operating voltage of about 10 volts, rather than the 12 volts stated. The point of this observation is that there seems to be an error in this first assertion with regard to the disclosure of Hopper.

The Office Action also states that the voltage regulating circuit 90 in Hopper is within the casing that contains the batteries, as described in claim 1 of the patent application. There is no such disclosure in Hopper. As just described, Hopper provides a recharging tray 26, shown in Figure 9 of Hopper and described from column 3, line 63 through column 4, line 10 of Hopper. As described there, the batteries are received in that tray and are held in place by guide rails 70 that restrain flanges of the batteries. The terminals of the battery make connection at terminal strips 80 and 81. The tray is permanently mounted within a vehicle using the "fastener apertures 86". As described with respect to Hopper's Figure 12, the vehicle battery 88 is connected through the ignition switch 89 to the regulator 90. In other words, whenever the motor vehicle is operating, the batteries are potentially being charged.

Hopper never describes the location of the regulator 90 and the associated circuitry including two transistors and other circuit elements. In other words, Hopper never describes that the voltage regulating circuit is, as alleged in the Official Action, within the casing that contains the batteries. Therefore, Hopper fails to meet the cited limitation of claim 1 because, even assuming that Hopper's battery tray might be considered to correspond to the casing of the invention, Hopper does not disclose, or even suggest, that the voltage regulator is within that tray, i.e., casing.

THE INVENTION

The invention is easy to comprehend. The invention concerns a flashlight including a light bulb having a fixed operating voltage. This flashlight is typically used at a work site. For a number of years, various manufacturers of power tools have supplied tools powered by rechargeable batteries. As the technology of these cordless power tools has advanced, the voltage nominally supplied by the rechargeable power tool batteries has changed. In general, industrial quality power tools use batteries with higher voltages. Consumer-oriented power tools generally employ lower voltage batteries. On a typical work site, numerous rechargeable batteries producing various respective nominal output voltages are likely to be present. Typically, these batteries have similar mechanical characteristics so that a battery of a particular voltage may be electrically and mechanically connected to a power tool created for a different input voltage.

In the flashlight according to the invention, any of the available batteries on the work site may be employed to power the flashlight. All flashlight light bulbs have a fixed operating voltage. If the voltage applied is larger than the intended voltage, then the life of the light bulb is substantially shortened. If the voltage applied to the light bulb is below the fixed operating voltage of the light bulb, then the light bulb produces substandard illumination. However, on a work site, every voltage battery, and particularly a battery designed to operate a flashlight, may not be immediately available either in any form or as a recharged battery. Therefore, the flashlight may not be operated satisfactorily.

The invention solves this problem by providing a flashlight that includes an internal voltage regulator. The voltage regulator operates with whatever output voltage is produced by whichever battery happens to be available and charged as supplying the input voltage. The voltage regulator controls an output voltage that, regardless of whatever battery is connected, matches the fixed operating voltage of the light bulb of the flashlight.

THE COMBINATION OF HOPPER AND FAULK

The Examiner conceded that Hopper does not describe the electronic voltage regulating circuit of the invention that produces an output voltage that matches or essentially matches the fixed operating voltage of the light bulb, regardless of the voltage of the battery powering the light bulb. This part of the claimed invention cannot be met by Hopper for two reasons.

First, the battery employed by Hopper only produces one output voltage, an output

in Hopper is not the voltage of the battery that powers the light bulb. Rather, it is the voltage of motor vehicle battery that is employed for recharging the flashlight battery.

Second, the voltage regulator employed in Hopper does not regulate the voltage of the battery that powers the flashlight. In order to use the flashlight in Hopper, as described by Hopper, the flashlight is withdrawn from the recharging tray that is fixed to a motor vehicle, and taken outside the tray, if not outside the motor vehicle. At that point, there is no connection between the battery powering the flashlight and the voltage regulator. By contrast, in the invention, the electronic voltage regulating circuit is within the casing that contains whichever battery is in the casing so that the electronic voltage regulating circuit is always carried around with the flashlight. One of skill in the art would find no suggestion for changing the position of the voltage regulator in Hopper from the motor vehicle to the flashlight because the voltage regulator in Hopper has no function independent of the motor vehicle and its charging battery.

As conceded by the Examiner, Faulk does not supply the elements of the invention as claimed in claim 1, and in dependent claims 2-10, that are missing from Hopper. What is disclosed by Faulk is exactly the opposite of what is achieved in the invention. Therefore, one of skill in the art would not even find a suggestion in Faulk for modifying Hopper.

Faulk is directed to eliminating a requirement in computer hardware of multiple different batteries producing different output voltages, as a sustaining power supply. As explained in the background of Faulk, there are many standards employed in the computer hardware industry for such batteries. There is no standard voltage provided by any such battery. Therefore, different manufacturers use batteries of different voltages, increasing the inventory of batteries required to replace and repair such computer hardware.

Faulk solves the problem of multiple non-standard batteries by employing a single standard battery producing a fixed output voltage in combination with a circuit that is preprogrammed, and senses an input voltage. That circuit then either steps ups or steps down the voltage of the standard battery to match the requirements of the computer hardware to which the Faulk circuitry is connected.

The contrast between the invention and Faulk can be briefly summarized. In the invention, in a flashlight, the flashlight can be powered with numerous different batteries producing respective different voltages because the voltage regulating circuit that is provided between the batteries and the light bulb regulates the output voltage supplied to the light bulb. The regulated output voltage is constant, essentially the rated operating voltage of the light bulb, regardless of the nominal voltage of the battery supplying the voltage. In Faulk, a single battery producing a fixed output voltage is always employed, regardless of the load to which power is being supplied by the battery. Different loads have different voltage demands

so that Faulk provides a circuit that alters the fixed voltage from the battery to supply the variable voltage required by each particular load, based upon sensed information or preprogrammed information. The invention has a variable voltage input and a fixed voltage output. Faulk has a fixed voltage input and a variable voltage output.

In relying upon Faulk, the Examiner directed attention to column 6, lines 50-58. The most pertinent lines in that passage are lines 54-58.

> A battery pack subsystem, comprising: one or more battery cells; and a power converter which is connected to ... selectively decrease or increase the voltage applied to external terminals during discharging; ....

This passage clearly emphasizes the inverse relationship of Faulk and the invention. In the invention it is made certain that the voltage supplied during discharging of the battery, i.e., operating of the light bulb, is maintained essentially constant, i.e., at the operating voltage of the light bulb. In Faulk, during discharging, the external voltage is not constant but is decreased or increased to meet the needs of the load.

No one of skill in the art would find a teaching within either of Hopper or Faulk for providing a constant output voltage from batteries of different voltages in order to power a flashlight efficiently and properly as in the invention. Moreover, no one would find a suggestion for modifying Hopper with Faulk for any reason.

In summary, the hypothetical combination of Hopper and Faulk fails to meet the limitation of the claims for two independent reasons. First, there is no motivation to modify Hopper with Faulk. Hopper describes a flashlight having a single rechargeable battery having a fixed nominal output voltage driving a light bulb. Faulk is directed to compensating for the use of a battery with a fixed nominal output voltage to drive loads having different voltage requirements. There is no common element to lead one of skill in the art to apply the teaching of Faulk to Hopper because no apparent advantage would be achieved. Second, the proposed modification would not include all of the limitations of claim 1, as examined, or any of the claims as presented here, including amended claim 9, because the voltage regulating circuit of Faulk provides variable output voltages from a battery of a fixed nominal voltage, not a fixed output voltage based upon variable nominal voltages of various batteries connected to the input of the voltage regulator.

THE TEACHING OF LEMKE

Lemke describes many features relating to supplying power from a battery to a light bulb of a flashlight. Many of the features are not relevant to the present invention or claims. For example, Lemke describes a gradual power application to the light bulb at the time of

first turning on the light bulb, i.e., power-up, and maintaining a constant root mean square (RMS) voltage on a light bulb during operation. Further, Lemke describes modulating light output when the battery voltage begins to decline indicating the approach of the end of the battery's life.

According to the Office Action, Lemke describes a regulating circuit that "regulates whatever battery voltage is supplied by whichever of the battery pack is in the battery...to substantially the fixed operating voltage of the light bulb at the output of the voltage regulating circuit." Attention is directed to Figure 2 of Lemke, a schematic diagram of a voltage regulating circuit that controls an electronic switch connecting a battery 1 to a lamp 2.

While Lemke certainly describes flashlight batteries in general, making extensive references to manganese alkaline batteries and their characteristics, there is no passage in Lemke that describes using a battery having a nominal output voltage different from the nominal output voltage of the lamp powered by the battery. In other words, contrary to the assertion of the Office Action, Lemke never describes regulating a battery voltage of whichever of battery packs having different respective battery voltages is connected to power a light bulb. Instead, what Lemke describes is connecting a battery having a nominal output voltage matched to the voltage of the lamp driven by the battery and, subsequently, regulating the output of the battery to control the starting of the lamp, the continuous operation of the lamp, and deterioration of light as the battery declines in capacity. In fact, the important output of the battery that is regulated by Lemke is not even the voltage or the current. "The average power drawn from the battery 1 remains relatively constant over the useable voltage range of the battery 1 as the increase in the average current drawn from the battery 1 compensates for the battery 1 voltage reduction." Lemke at column 8, lines 58-62. This power output regulator does not suggest the voltage regulator of the claimed invention.

Lemke's smart battery extends lamp life by providing slow starting and compensates for battery deterioration by extending the period of substantially constant light output. However, Lemke's smart battery is simply not smart enough to produce an output voltage substantially matched to a fixed operating voltage of a light bulb regardless of the nominal output voltage of which numerous batteries, having respective different output voltages, is connected to power the light bulb.

The rejection based upon further modification of Hopper and Faulk with Lemke still cannot establish *prima facie* obviousness of the invention. As already pointed out, there is no reason to modify Hopper with Faulk and the hypothetical modification, as acknowledged by the Examiner, does not produce a regulator circuit having the features described in the claims previously examined and now pending. Even assuming Lemke could be employed to modify the inappropriate combination of Hopper and Faulk, the combination would still be missing

important features of voltage regulating circuit of the claims. Thus, *prima facie* obviousness cannot be established by adding Lemke to the hypothetical combination of Hopper plus Faulk.

CONCLUSION

Since *prima facie* obviousness has not been established as to any claim now pending, upon reconsideration all pending claims should be allowed.

Respectfully submitted,

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